Deep Creek and Whitewater River

Resource Assessment

Introduction

A resource assessment, or river values report, is an important early step in the process of wild and scenic river planning. This resource assessment is intended to guide the preparation of comprehensive river management plans (CRMPs) for Deep Creek and Whitewater River, two designated wild and scenic rivers (WSRs). To be eligible for WSR status, a river must be free-flowing and possess one or more outstandingly remarkable values (ORVs.) Free-flowing status, water quality, and ORVs are together considered river values and are all discussed in this report. The report takes into consideration all features that are directly river-related, and helps provide a holistic approach to investigating the relationship between river features. The resource assessment process includes examining potential ORVs and determining their status in the context of a region of comparison, based on the river-related values that contribute to the river's overall character.

The Wild and Scenic Rivers Act (WSRA) states that "outstandingly remarkable scenic, geologic, fish and wildlife, historic, cultural, or other similar values" be preserved (Public Law 90-542 1968). These ORVs (including botany as an "other similar value") are all considered in this assessment The ORV determination process for Deep Creek and Whitewater River began for the Forest Service (FS) and Bureau of Land Management (BLM) during the development of the 2005 San Bernardino National Forest Land Management Plan (FS 2005). In 2021, a virtual workshop was then held with an interdisciplinary team of Forest Service and BLM experts for the purpose of developing CRMPs for these two WSRs. During that workshop, resource experts revisited each potential outstandingly remarkable value.

To determine whether the two rivers possess particular ORVs, interdisciplinary study teams made professional judgments of the rivers based on objective scientific analysis, relying on direction from the Wild and Scenic Rivers Act (WSRA), interagency guidelines, and guidance from FS and BLM. FS criteria used to evaluate ORVs for Deep Creek and Whitewater River can be found in *Appendix E: Wild and Scenic Rivers of the Final Environmental Impact Statement, Volume 1 Land Management Plans*, (FS 2005). BLM criteria used for the evaluation are taken from the *BLM Manual 6400 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management* (Manual; BLM 2012) and the eligibility report in the Coachella Valley Amendment to the California Desert Conservation Area Plan (BLM 2002).

River Segment Classification

Different segments of Deep Creek and Whitewater River are classified as either wild, scenic, or recreational, based on the degree of access and amount of development along the river area (Public Law 90-542 1968). The primary criteria for the three classifications are outlined below:

- **Wild River Areas:** Those rivers, or sections of rivers, that are free from impoundments, generally inaccessible except by trail (no roads), with watersheds or shorelines essentially primitive, and having unpolluted waters.

- **Scenic River Areas:** Those rivers, or sections of rivers, that are free from impoundments, having shorelines or watersheds largely primitive and undeveloped, but accessible in places by roads (i.e., roads may cross but generally not parallel to, or in close proximity to, the river). These rivers or segments of rivers are usually more developed than wild river areas, but less developed than recreational river areas. This classification does not imply that scenery is an ORV.

- **Recreational River Areas:** Those rivers or sections of rivers that are readily accessible by road or railroad, may have had some development of the shoreline, and may have had some impoundment or diversion in the past. This classification does not imply that recreation is an ORV.

Region of Comparison

In order to be assessed as outstandingly remarkable, a value must be river-related or river-dependent and must be a unique, rare, or exemplary feature that is significant when compared to other rivers in the region or Nation. The following section describes the region of comparison used in evaluating values for outstandingly remarkable status for Deep Creek and Whitewater River.

Deep Creek

The Deep Creek WSR includes both Deep Creek itself, as well as its tributary Holcomb Creek. The region of comparison used to evaluate the river values of Deep and Holcomb Creeks included a large portion of the Mojave River Watershed, encompassing Silverwood Lake to the west near the junction of California Highways 138 and 173, the Ord Mountains to the north, Holcomb Valley to the east, and the Southern Shore of Lake Arrowhead to the south at California Highway 189. Within this region of comparison are lands managed by the California Department of Parks and Recreation, municipalities, some private property inholdings, and lands managed by the BLM. The majority of other lands in the region of comparison for Deep Creek WSR are managed by the San Bernardino National Forest and by the U.S. Army Corps of Engineers (USACE). Some other prominent water resources in the region of comparison include the East Fork, Mojave River, Silverwood Lake, Hook Creek, Crab Creek, Coxey Creek, and Lake Arrowhead.

Whitewater River

The FS and BLM used the same region of comparison to evaluate their respective segments of Whitewater River. The region of comparison used to evaluate all Whitewater River values encompassed the eastern San Gorgonio watershed, including Mission Creek, Coachella Valley National Wildlife Refuge, and Coachella Valley Preserve. This region includes several prominent water resources, such as Palm Canyon WSR, Tahquitz Canyon waterfall, Big Morongo Canyon, Coachella Valley Preserve, and Mission Creek.

ORV evaluation for both WSRs is further described in the section below.

Outstandingly Remarkable Values

The term "outstandingly remarkable value" has never been precisely defined, but criteria have been described in *The Wild and Scenic River Study Process*, a technical report of the *Interagency Wild and Scenic Rivers Coordinating Council and FS Handbook 1909.12*, Chapter 80 (FS 2015). Furthermore, the BLM Manual defines an ORV, in general, as a resource that is considered more than simply ordinary in the context of the local region of comparison (BLM 2012). This resource assessment is based on the professional judgment of an interdisciplinary study team. It documents objective, scientific analysis based on reviews of available literature, consultation with experts, and field work.

ORVs commonly used include such attributes as scenery, recreation, geology, fish, wildlife, heritage (including historic, prehistoric, and/or cultural resources), and botany. To be considered river-related, a value should be located in the river or its immediate environment (generally within one-quarter mile on either side), contribute substantially to the functioning of the river ecosystem, owe its existence to the presence of the river, or some combination of these conditions.

The following ORVs were identified for Deep Creek and Whitewater River:

ORV Name	Deep Creek* (FS)	Whitewater River (FS)	Whitewater River (BLM)
Scenery	X	X	X
Recreation	X		X
Geology	X		
Fish	X		
Wildlife	X	X	X
Heritage	X		X
Botany	X		

*The Deep Creek WSR includes both Deep Creek and its tributary Holcomb Creek.

The process for determining ORVs on these two rivers is further described below. The FS and BLM identified the following criteria for each value for determining if any river-related values were outstandingly remarkable:

- **Scenery**
    - *FS Criteria:* The landscape elements at the river of landform, vegetation, water, color, and related factors result in notable or exemplary visual features, attractions, or both. When analyzing scenic values, additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment (FS 2015).
    - *BLM Criteria:* The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. The *BLM Visual Resource Inventory Handbook, H-8410-1*, may be used in assessing visual quality and in

evaluating the extent of development upon scenic values (BLM 1986). The rating area must be classified as scenic quality A, as defined in the *BLM Visual Resource Inventory Handbook*. When analyzing scenic values, additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse along the majority of the river or river segment (BLM 2012).

- **Recreation**
    - *FS Criteria:* Recreational opportunities within the river corridor are, or have the potential to be, popular enough to attract visitors from throughout the region or are unique or rare within the region. Visitors are willing to travel long distances to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. Interpretive opportunities may be exceptional and attract, or have the potential to attract, visitors from outside the region. The river may provide, or have the potential to provide, settings for national or regional usage or competitive events (FS 2015).
    - *BLM Criteria:* Recreational opportunities within the river corridor are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. River-related opportunities include, but are not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. Such a recreational opportunity may be an ORV without the underlying recreational resource being an ORV (for example, fishing may be an ORV without the fish species being an ORV). The river may provide settings for national or regional usage or competitive events (BLM 2012).

- **Geology**
    - *FS Criteria:* The river or the area within the river corridor contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a textbook example, or represent a unique or rare combination of geologic features, such as erosional, volcanic, glacial, or other geologic structures (FS 2015).
    - *BLM Criteria:* The river corridor contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a textbook example, and/or represent a unique or rare combination of geologic features, such as erosional, volcanic, glacial, or other geologic features (BLM 2012).

- **Fish**
    - *FS Criteria:* Fish values may be judged on the relative merits of either fish populations, habitat, or a combination of these river-related conditions (FS 2015).

      <u>Populations</u>*:* The river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or

federally listed, StateState listed, or candidate threatened, endangered, or sensitive species. Diversity of species is an important consideration and could independently lead to a determination of an ORV (FS 2015).

Habitat: The river provides exceptionally high-quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks and/or federally listed, State listed, or candidate threatened, endangered, or sensitive species. Diversity of habitats is an important consideration and could independently lead to a determination of an ORV (FS 2015).

- *BLM Criteria:* Fish values include either indigenous fish populations or habitat or a combination of these river-related conditions (BLM 2012).

  Populations: The river is an important producer of indigenous resident and/or anadromous fish species either nationally or regionally. Of particular significance is the presence of wild stocks and/or federally listed, State listed, or candidate threatened, endangered, or BLM Sensitive species. Diversity of species is also an important consideration and could independently lead to a determination of an ORV (BLM 2012).

  Habitat: The river provides exceptionally high-quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks and/or federally listed, State listed, or candidate threatened, endangered, or BLM Sensitive species. Diversity of habitat is an important consideration and could independently lead to a determination of an ORV (BLM 2012).

- **Wildlife**
  - *FS Criteria:* Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat, or a combination these conditions (FS 2015).

    Populations*:* The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique, and/or populations of federally listed, State listed, or candidate threatened, endangered, or sensitive species. Diversity of species is an important consideration and could independently lead to a determination of an ORV (FS 2015).

    Habitat: The river, or area within the river corridor, provides exceptionally high-quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for federally listed, State listed, or candidate threatened, endangered, or sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitats is an important consideration and could independently lead to a determination of an ORV (FS 2015).

    In applying these criteria, these features may be identified as an ORV if the area represents important habitat for breeding or it is occupied at critical life stages such as

breeding. These features may also be classified as an ORV if the area offers exceptional habitat or diverse habitat for particular species.

- *BLM Criteria:* Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat, or a combination these conditions (BLM 2012).

  Populations: The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species dependent on the river environment. Of particular significance are species considered to be unique to the area and/or populations of federally listed, State listed, or candidate threatened, endangered, or BLM Sensitive species. Diversity of species is an important consideration and could independently lead to a determination of an ORV (BLM 2012).

  Habitat: The river, or area within the river corridor, provides exceptionally high-quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for federally listed, State listed, or candidate threatened, endangered, or BLM Sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitat is an important consideration and could independently lead to a determination of an ORV (BLM 2012).

- **Heritage (Prehistoric, Historic, and Cultural Resources)**
  - *FS Criteria:* The river, or area within the river corridor, contains important evidence of historic or prehistoric occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory (FS 2015).

    Historical*:* The river or area within the river corridor contains one or more sites or features associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. Many such sites are listed in the National Register of Historic Places, which is administered by the National Park Service. A historic site or feature is at least fifty years old in most cases (FS 2015 and IWSRCC 1999).

    Prehistorical*:* The river, or area within the river corridor, contains a site or sites where there is evidence of occupation or use by Native Americans. Sites must have unique or rare characteristics or exceptional human-interest value. Sites may have national or regional importance for interpreting prehistory; may be rare and represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; and/or may have been used by cultural groups for rare sacred purposes. Many such sites are listed in the National Register of Historic Places (FS 2015 and IWSRCC 1999).

  - *BLM Criteria:*

    Historical: The river, or area within the river corridor, has scientific value or contains a rare or outstanding example of a district, site, building, or structure that is associated with an event, person, or distinctive style of historical significance. Likely candidates include sites that are eligible for the National Register of Historic Places at the national level or

have been designated a national historic landmark by the Secretary of the Interior (BLM 2012).

Cultural: The river, or area within the river corridor, contains rare or outstanding examples of historic or prehistoric locations of human activity, occupation, or use, including locations of traditional cultural or religious importance to specified social and/or cultural groups. An example of a likely candidate is a unique plant procurement site of contemporary significance (BLM 2012).

- **Botany**
    - *FS Criteria:* Botanical ORVs are determined based on the relative merits of either plant populations or habitat, or a combination of these conditions.
    - *BLM Criteria:* The area within the river corridor contains riparian communities that are ranked critically imperiled by State natural heritage programs. Alternatively, the river contains exemplary instances of more common riparian communities in terms of health, resilience, species diversity, and age diversity. The river corridor may also contain exemplary and rare types of ecological refugia (such as palm oases) or vegetation habitats (such as hanging gardens or rare soil types) that support river-related species. The river may also contain river-related plant species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) or appear on the BLM's Sensitive Species List (BLM 2012).

River Descriptions

Deep Creek runs through the San Bernardino National Forest, and it is solely administered by FS. The designated Deep Creek WSR includes both Deep Creek and its tributary, Holcomb Creek. Deep Creek and Holcomb Creek are therefore collectively referred to in this report as either "Deep Creek WSR" or, in context, "the river." Deep Creek, including Holcomb Creek, is a popular location for recreation, and is located 60 miles east of Los Angeles, flowing through the San Bernardino mountains. A total of 34.5 miles of the river is designated. Approximately two-thirds of the river is wild, about one-third is recreational, and the two smallest sections are scenic. The river is a renowned freshwater fisheries resource and runs parallel to the Pacific Crest Trail.

Whitewater River is split between FS and BLM jurisdiction and resides within the Sand to Snow National Monument. A total of 28.1 miles of Whitewater River is designated as wild or recreational. Approximately 19.1 miles of designated river falls under FS jurisdiction in the San Bernardino National Forest (Forest), while the remaining 9.0 miles falls under BLM jurisdiction and is administered by the BLM Palm Springs-South Coast Field Office. Approximately 90% of the Whitewater river corridor is wilderness, and much of it is inaccessible. The Whitewater WSR includes the North Fork, Middle Fork, and South Fork on FS land. The North and Middle Forks are classified as wild segments, and the South Fork is classified primarily as wild, with a small recreational segment. The river flows onto BLM land at the confluence of the Middle and South Forks as a wild segment. It then flows south, through the Whitewater Preserve, a section of land managed by The Wildlands Conservancy, where it is classified as

a recreational segment. Originating on Mount San Gorgonio, within the San Gorgonio Wilderness, the designated reach of the river flows through the San Bernardino Mountains to the Coachella Valley region. The river is surrounded by desert to the east.

Findings and Discussion of Values

Discussion of ORVs, criteria, and findings are detailed below for the Deep Creek and Whitewater WSRs. Deep Creek WSR includes both Deep Creek and its tributary Holcomb Creek. These rivers are both part of the same WSR, which falls entirely under FS jurisdiction. Deep Creek and Holcomb Creek are therefore generally discussed together in the sections below, with the exception of location-specific descriptions. Whitewater WSR, on the other hand, lies partially on FS-managed land and partially on BLM land. The ORVs are different on portions of the river under either jurisdiction, as described below. Descriptions of the free-flowing condition and water quality for each river, which are considered generally "river values" but not ORVs, are also included.

River Values: Deep Creek (including Holcomb Creek)

1. Scenery

Finding
The river corridor possesses outstandingly remarkable scenic values.

Discussion of Values – Rationale for Conclusion
Located in the San Bernardino Mountains, the Deep Creek WSR has scenery ranging from an upper transitional life zone to a high desert environment. The river corridor possesses deep, rugged, steeply sloping canyon walls that occasionally broaden out to encompass large, sweeping views. Above the river are hillsides dominated by a variety of colorful vegetation, including conifer, mixed oak, and pinyon-juniper woodlands, chaparral and grassland, and desert-scrub. The river corridor itself is surrounded by lush, green riparian forests of cottonwood, alder, ash, and willow. Seasonal variations in the vegetation and surrounding landscape are apparent, especially at higher elevations.

Deep Creek WSR supports spectacular, unique, and diverse scenery of regional significance. Most portions of the river flow year-round, providing consistently exceptional views. Dramatic breaks in the creek consist of deep pools, sprawling sandy beaches, ponds fringed with cattail and bullrush, and large slabs of bedrock. The river corridor experiences very little noise disturbance, providing for a peaceful experience of the outstanding scenery.

The Scenic Integrity Objective (SIO) is High. SIOs are objectives that define the minimum level to which landscapes are to be managed from an aesthetics standpoint (FS 2005). For example, a "Very High" SIO generally provides for ecological changes only and refers to landscapes where the valued or desired landscape character is intact with only minute, if any, deviations. The landscape at Deep Creek WSR has not been influenced or altered by man except near the beginning of the river and the reservoir terminus at the Forest boundary.

2. Recreation

Finding

The river corridor possesses outstandingly remarkable recreation values.

Discussion of Values – Rationale for Conclusion
Deep Creek is a moderate to high use multi-elevation backcountry canyon that supports a variety of recreational activities. The river is easily accessible to visitors via the Pacific Crest Trail, which runs throughout the WSR corridor, and State Highway 18. At the headwater tributaries of the river are Snow Valley Ski Area and Little Green Valley, which provide opportunities for skiing, mountain biking, running, hiking, and snowboarding. Part of the river is also near the communities of Arrowbear Lake and Running Springs; the Fisherman's Group Campground and Splinters Cabin Day Use Area are both near these towns. Some sections of Deep Creek are ideal for four-wheel drive and off-highway vehicles (OHVs), while other portions are well-suited to hiking and backpacking.

Deep Creek is also a renowned regional freshwater fisheries resource, one of the best in the surrounding Forest and greater southern California. It was adopted by the Fisheries Resource Volunteer Corps, and it has been designated as a State of California Wild Trout Program Stream. Visitors can also enjoy remote fly-fishing opportunities with beautiful scenery and abundant fishes. There are many opportunities for sightseeing, swimming, picnicking, horseback riding, and wildlife viewing at the river as well. Deep Creek Hot Springs is another unique and popular recreation destination in the river corridor. Most of the recreational activities at Deep Creek are available nearly year-round, although heavy snows at the upper reaches of the river corridor can limit access during the winter.

Holcomb Creek, also, provides opportunities for swimming, picnicking, fishing, wildlife viewing, and hiking. These opportunities are available most of the year, except when heavy snows at the upper reaches of the river corridor limit access. The headwaters of Holcomb Creek begin in Holcomb Valley, the site of a unique self-guided auto tour of historic gold mining operations. The iconic Pacific Crest Trail also intersects Holcomb Creek. There are several camping areas and challenging cross-country skiing opportunities within the river corridor as well.

Holcomb Creek offers several challenging jeep trail travel opportunities for experienced four-wheel drive enthusiasts, opportunities unavailable at Deep Creek. The T-6 Crossing Bridge near Dishpan Springs is the most difficult jeep and OHV trail adjacent to the river corridor. Other off-road opportunities provide novice four-wheel and OHV drivers with less challenging routes.

The Holcomb Creek section of the WSR corridor has many areas that are easily accessible to visitors, with numerous established trails, roads, and camping areas. The Pacific Crest Trail runs adjacent to and through the Holcomb Creek section of the WSR corridor. Hikers can rest in several designated developed trail campsites along Holcomb Creek such as Little Bear Springs, as well as numerous non-designated, primitive campsites. There are also several unique recreation opportunities in the area, such as hot springs, a gold mining auto tour, and renowned trout-fishing areas.

3. Geology

Finding
The river corridor possesses outstanding remarkable geology values.

Discussion of Values – Rationale for Conclusion

Deep Creek lies within two ecological subunits of California. The upper third of the canyon falls within upper San Gorgonio Mountain, while the lower two-thirds lie within the lower elevation of Mount San Gorgonio, which lies within the San Bernardino Mountains. Upper San Bernardino Mountains contain mostly Mesozoic granite, as well as some Precambrian gneiss and Paleozoic marine sedimentary rocks. Mount San Gorgonio, on the other hand, contain mostly Mesozoic granite rocks and Precambrian igneous and metamorphic rocks, as well as some Paleozoic marine sedimentary rocks and minor amounts of Pliocene nonmarine sediments.

The river corridor possesses locally significant traverse range mountains with faults and steep escarpments. Deep Creek is located within the San Bernardino Mountains, part of the Traverse Ranges of Southern California. This mountain chain formed from tectonic forces at the San Andreas Fault, between the North American and Pacific Plates. The mountain range was shaped into its present form beginning approximately two million years ago, and the rocks making up the existing mountains range from 18 million to 1.7 billion years old.

Due to the large, steep rise of the San Bernardino Mountains above the surrounding terrain, erosion has carved out numerous river gorges, such as Deep Creek Canyon. Rocks and sediment from the mountains are deposited onto the valley floors as massive alluvial fans with permeable soils. There are also quaternary nonmarine sediments and recent alluvium within the river corridor, important albeit small geological components of the area. The primary geomorphic processes are mass wasting and fluvial erosion.

Holcomb Creek is also characterized by several distinct geological features. The river corridor possesses a unique pebble plain habitat, derived from an ancient clay lakebed, as well as deposits of carbonite soil from an ancient inland sea. Both deposits support several sensitive and federally listed endemic plant species.

The most prominent geological features at the Deep Creek WSR, however, are the regionally significant thermal hot springs that occupy two areas within the river corridor, separated by approximately half a mile. The renowned Deep Creek Hot Springs draw visitors from around the region and the country. These unique hot springs impart the creek with its outstandingly remarkable geologic values.

4. Fish

Finding
The river corridor possesses outstanding remarkable fish values.

Discussion of Values – Rationale for Conclusion
Deep Creek is a premier fishing location in the area, one of two drainages in the region designated as a Wild Trout Stream by the California Department of Fish and Wildlife. Deep Creek supports naturally reproducing populations of rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*), which are regionally and nationally significant, as well as other important native fishes. The federally endangered Mojave tui chub (*Gila bicolor mohavensis*) was once present in Deep Creek, although these fish have since hybridized with the arroyo chub (*Gila orcuttii*), a California Species of Concern. The exotic black bullhead (*Ameirus melas*) and green sunfish (*Lepomis cyanellus*), as well as the native

Pacific staghorn sculpin (*Leptocottus armatus*), can also be found in the river. In the summer months, deep pools within Deep Creek provide important resting and foraging areas for trout and chub. The river possesses high quality aquatic habitat and a diverse array of fishes.

5. Wildlife

Finding
The river corridor possesses outstandingly remarkable wildlife values.

Discussion of Values – Rationale for Conclusion
In 1999, Deep Creek was identified as an area of high ecological significance in a report published by FS entitled *Southern California Mountain and Foothill Assessment: Habitat and Species Conservation Issues*, which analyzed habitat and species conservation issues across the four California national forests. Two federally listed species depend on habitat associated with Deep Creek. These are the federally endangered southwestern willow flycatcher (*Empidonax trailii extimus*), which relies on the riparian forests of willow and cottonwood within the river corridor, and the federally endangered arroyo southwestern toad (*Bufo microscaphus californicus*), which lives and breeds along the sandy shores of the creek. In fact, Deep Creek has been designated by USFWS as Critical Habitat for the toad.

The Deep Creek river corridor provides high quality aquatic and riparian habitat for a number of other species, as well. The high, sheer rock walls along the creek are ideal nesting and roosting habitat for birds of prey, most notably, golden eagles (*Aquila chrysaetos)* and several species of falcon. Shorter, deep side canyons also provide shelter from the heat and foraging habitat for mammals such as gray foxes (*Urocyon cinereoargenteus*) and black bears (*Ursus americanus*). The river corridor serves as a critical habitat linkage that connects wildlife habitats for a variety of species, including threatened and endangered species travelling via the Mojave River from desert riparian areas to the mountains. The riparian corridor along Holcomb Creek is used by migrating birds and other wildlife, allowing dispersal and movement further east into the San Bernardino Mountains.

The Deep Creek WSR supports a variety of unique and diverse wildlife habitats and harbors several sensitive and listed species along their length.

6. Heritage (Historic, Prehistoric, and Cultural Resources)

Finding
The river corridor possesses outstandingly remarkable cultural and prehistoric heritage resources.

Discussion of Values – Rationale for Conclusion
There is evidence of Native American use of Deep Creek Canyon, reflecting a long period of Native American life. Evidence stretches back to the archaic period through the later prehistoric periods and into the historic period. These resources have exceptional human-interest value to the local Native American and tribal community. Ethnographic research has documented local Native American place names for several areas within the river corridor, affirming long-standing associations in the tribal community. In addition to having scientific value, these resources also meet the standards for a highly significant

Traditional Cultural Property. Traditional Cultural Properties are eligible for inclusion in the National Register of Historic Places.

The river is also known for its significant California Gold Rush history. From 1860 through the early 1900s, Holcomb Valley was the scene of Southern California's largest gold rush. The mining towns of Belleville, Clapboard Town, and Union Town dotted the Valley. Placer mining became essential to the area. This form of mining involved separating heavy pieces of gold from lighter sand or gravel, typically in creeks. There were several mining claims in the vicinity of Holcomb Creek that imparted development and extraction rights to miners. Gold mining waves ebbed and flowed in what became the Holcomb Mining District for over one hundred years. The gold rush in the area drew the attention of both large schemes funded by investors on the London Stock Market during the 1890s and family-run outfits testing their luck during the Great Depression and post-World War II era. Extractions of gold, silver, and copper continued in this area for longer than anywhere else in California. This eventually developed into the extraction of limestone country rock by the steel industry.

Holcomb Valley, including the Holcomb Creek mining claims, is listed as California Historical Landmark #619. The district appears to be eligible for listing on the National Register of Historic Places for its California Gold Rush history. The Gold Rush history is complemented by its concurrent grazing history. The Quiroz brothers' and Will Hitchcock's herds grazed around the Gold Rush miners until the establishment of the FS Coxey Grazing Allotment, bounded by Deep Creek.

Recreation featuring the Gold Rush mines and their historical significance continued to develop in the 1880s and into the present. Today, unique gold mining auto tours guide visitors through the California Gold Rush history in this area. Like the Native American resources in the river corridor, these historical resources representing entwined enterprises may also be of scientific value. They represent interesting opportunities for the study of historical economies.

7. Botany

Finding
The river corridor possesses outstandingly remarkable botanical values.

Discussion of Values – Rationale for Conclusion
The Deep Creek WSR corridor possesses diverse vegetation communities, supporting montane riparian hardwood, montane conifer/hardwood, montane conifer, montane upland hardwood, mixed conifer, Jeffrey pine (*Pinus jeffreyi*), riparian forest, riparian scrub, lower montane conifer/hardwood, pinyon/juniper woodlands, northern mixed chaparral, scrub oak chaparral, montane chaparral, and interior/desert scrub communities. This area supports a high level of floristic diversity, including approximately 600 different vascular plant taxa. The river corridor is also home to approximately forty rare plant species. The locally significant, FS Sensitive and Watch List species lemon lily (*Hemerocallis lilioasphodelus*), Humboldt lily (*Lilium humboldtii*), and Palmer's mariposa lily (*Calochortus Palmeri*) all occur along the river. These species of lily are present in numerous locations. There is also a very rare and important occurrence of hot spring's fimbrystilis (*Fimbrystylis thermalis*) at the Deep Creek Hot Springs. The presence of many rare plants, combined with the fourteen known vegetation communities along the river corridor, constitute outstandingly remarkable botanical values at Deep Creek.

Holcomb Creek also possesses diverse plant communities and habitats. The creek supports rare, regionally significant montane wet meadow habitat, as well as a high number of endemic, federally listed and FS Sensitive plants, some of which appear in regionally significant populations along the river corridor. The adjacent pebble plain habitat supports the federally listed southern mountain buckwheat (*Eriogonum kennedyi* var. *Austromontanum*), Bear Valley sandwort (*Eremogone ursina*), and ash gray paintbrush (*Castilleja cinerea*), as well as the FS Sensitive and Watch List species Transverse Range phacelia (*Phacelia exilis*), San Bernardino Mountains dudleya (*Dudleya abramsii ssp. affinis*), silver-haired ivesia (*Ivesia argyrocoma* var. *argyrocoma*), and Parish's rockcress (*Boechera parishii*).

Finally, the montane meadow habitat at Holcomb Valley, located at the headwaters of Holcomb Creek, supports a number of federally listed plant species, including ash gray paintbrush, San Bernardino bluegrass (*Poa atropurpurea*), and California taraxacum (*Taraxacum californicum*). It is anticipated that the meadow also supports additional FS Sensitive and Watch List species, as the nearby Belleville Meadow possesses similar habitat and harbors an unusually large number of FS Sensitive and Watch List species.

A floristic study of the area was conducted from 2019-2021 to further characterize local flora. The study, carried out by the California Botanic Garden and led by Dr. Naomi Fraga, yielded thirty-nine unique species. The results of this study are summarized in a table in Appendix A.

Free Flowing Condition

Deep Creek is a free-flowing river along its entire length. The U.S. Geological Survey (USGS) maintains a surface water monitoring site on Deep Creek near the downstream end of the reach in Hesperia, California, where data are collected on flow rate and water elevation/river stage. There are 109 years of available data from this site, dating back to 1904, although no data is present from 1922 through 1929. Flow rates in the river can vary greatly, with annual average flows ranging from as little as 5 cubic feet per second (cfs) recorded in 2002, to as high as 407 cfs in 1993, with a maximum single flow event of 46,600 cfs in 1938. The current flow rate of the river at this location is 9.11 cfs, and the river's stage as of March 2, 2021, was 1.41 feet.

Historic data for Deep Creek suggest that higher base flow rates were once the norm, as opposed to the slower base flow current conditions. High flow rates generally occur in the spring, corresponding to warmer weather and subsequent snow melt, or to single, heavy precipitation events. This remote, swift-flowing mountain stream possesses a drainage basin of 135 square miles in size. Land development and water impoundments pose a threat to water flow due to the reduction in groundwater recharge, increase in runoff, and management of lake storage. Storm events also pose a threat to water flow, since the narrow canyon and stream bed of boulder reaches can trap debris, cause blockages, and erode soils, especially in the lower, more arid portion of the stream reach. Stream flow is also impeded by introduced beavers, dams installed for recreational wading, soaking pools at the hot spring areas, a USACE-run dam, concreted culverts, and box culverts.

Holcomb Creek is also free flowing from the Hitchcock Ranch impoundment to its confluence with Deep Creek. However, much of the flow is intermittent. The river flows southwest from its headwaters at an elevation of 7,200 feet to its intersection with Deep Creek, which is 4,400 feet in elevation. Heavy annual

flows tend to occur in the spring, corresponding to warmer weather, inducing snow melt, as well as single, heavy precipitation events. As is the case at Deep Creek, storm events that result in trapped debris in the canyons are the most immediate threat to water flow. Other impediments include introduced beavers, dams built for recreational wading, creek crossings, and an impoundment at the Hitchcock Ranch.

Water Quality

Deep Creek, the largest tributary of the Mojave River and part of the Mojave River Watershed Management Area (MWMA), is listed as having impaired drainage and was therefore monitored by USGS from 2000-2005 for chemicals and bacteria. The USGS sample site was located in the upper southeast portion of the watershed near Arrowbear Lake. Monitoring revealed potential exceedances in total dissolved solids, sulfates, fluoride, chloride, dissolved oxygen, pH levels, and boron. Exceedances in total dissolved solids were observed in four out of the five monitoring years and confirmed by a volunteer group associated with USFWS. In the late 1970s, a parasitic amoeba was found in the popular Deep Creek Hot Springs. While it has not been detected in recent years, this microorganism may still be present and pose a health threat. Camping and overnight cabin stays have led to an increase in debris, litter, and human waste along the river corridor.

Historically, water quality monitoring has also been conducted by hand, on an individual event basis at the USGS gage in Hesperia and at multiple well, spring, stream, and reservoir locations along the length of Deep Creek and its tributaries. Agencies collecting this data include the USGS, California State Water Resources Control Board, and USFWS, among others. Samples are tested for phosphorus, nitrogen, total dissolved solids, pH, alkalinity, arsenic, boron, metals, and others.

Holcomb Creek is also part of the MWMA. Like Deep Creek, Holcomb Creek has impaired drainage and was therefore monitored during the 2000-2005 USGS survey. The Holcomb Creek sample site was located at Crab Flats Road. Potential exceedances were found for total dissolved solids, sulfates, chloride, dissolved oxygen, pH levels, and boron. At Holcomb Creek, exceedances in total dissolved solids were found in all five years of monitoring and were confirmed by the USFWS volunteer group. Historically, the nearby Holcomb Valley was the site of many active and abandoned mines of generally low impact. However, some of the gold historically found in these mines was extracted using mercury, which could pose an issue to water quality.

River Values: Whitewater River

1. Scenery

FS Segment

Finding
The FS segment of the river possesses outstandingly remarkable scenic values.

Discussion of Values – Rationale for Conclusion
Whitewater River is located within the San Gorgonio Wilderness area near San Bernardino, California. The San Gorgonio Wilderness is a unique subalpine landscape ranging in elevation from 4,400 feet to 11,502 feet at San Gorgonio Peak, where the river originates. The wilderness, which spans 96,595 acres, is managed by both FS and BLM. It resides within the Sand to Snow National Monument, surrounded by desert to the east and mixed pine-fir forest to the north and west.

The North Fork of the river is moderately steep and high in elevation, with canyons, slopes, and narrow ridges in the San Bernardino Mountains. To the northeast lies Ten Thousand Foot Ridge, which provides views of montane meadow, alpine forest, and subalpine forest. Dark, mixed conifer forests and green-gray chaparral blanket the surrounding hillsides as the river's elevation decreases. The river is not always visible, especially during dry summer months, although heavy winter rains and large snow melts can change this dynamic. During the summer, rich, green vegetation against high cliffs, canyon walls, and cobble-strewn wash provides for a colorful view.

One outstanding feature is the stark relief of the landscape, which supplies breathtaking views from the top of Mount San Gorgonio. The river corridor also features high desert vegetation, willow scrub, and scattered cottonwoods. The river itself has a rocky bottom with deep pools, although portions of the river are intermittent. At lower elevations lies a sandy and boulder-strewn floodplain. The SIO for this river is Very High.

BLM Segment

Finding
The BLM segment of the river possesses outstandingly remarkable scenic values.

Discussion of Values – Rationale for Conclusion
The Whitewater River segment on BLM land has been inventoried as having a Class A, or Excellent, scenic quality rating, based on BLM Visual Resource Management guidelines (BLM 1986). The river segment is distinct given its lush vegetation and riparian area, as well as the rarity of water in the surrounding environment. The river corridor is described as beautiful and unique.

The landscape surrounding Whitewater is rich and diverse. Runoff from high elevations has carved steep mountains and narrow canyons with pockets of riparian plant communities at the upper reaches of the river corridor, to dense riparian and canyon plant communities at lower elevations. These lower areas of the river corridor have moderately steep canyon sides. The canyon walls at this segment vary from peach to tan to light and dark gray. Seasonal changes result in a wide array of color variation in the vegetation, which also varies greatly in height along the watershed.

The most visible manmade structure near the river is Whitewater Road, the main road in Whitewater Canyon, which runs along the western side. The small community of Bonnie Bell lies at the end of the canyon. It consists of thirty homes, one above-ground power line, and a ranger station. There are several manmade trails within the river corridor, including part of the Pacific Crest Trail. To the southeast and southwest of the river corridor terminus lies a wind farm consisting of numerous turbines that are not visible from the majority of the canyon.

2. Recreation

FS Segment

Finding
The FS segment of the river possesses no outstandingly remarkable recreation values.

Discussion of Values – Rationale for Conclusion
This segment of Whitewater River flows through the remote reaches of the San Gorgonio Wilderness. This portion of the river corridor is wild and has no access roads, except for an administratively controlled National Forest System Road that allows a municipal water company to reach the South Fork Cabin and Diversion Dam. There is little to no recreation, except for some foot trails at the headwaters and a trail at a privately owned section of the South Fork.

BLM Segment

Finding
The BLM segment of the river possesses outstandingly remarkable recreation values.

Discussion of Values – Rationale for Conclusion
As one of the premier destinations for outdoor recreation in the Coachella Valley, the Whitewater River attracts visitors year-round from all over Southern California. Recreational opportunities along this segment of the river include swimming, wading, hiking, hunting, picnicking, wildlife viewing, nature photography, and horseback riding. Access to the recreational portion of the BLM-managed segment of the WSR corridor is readily available via the paved Whitewater Road, and there are paved parking areas by Whitewater Preserve. The paved road, nearby Pacific Crest Trail, and other trails provide multiple routes of access for visitors. Thus, most of this segment of the river is easily accessible for outdoor recreation. Although remote areas of the river are not accessible by trail, there is evidence of some user-generated trails within the river corridor, suggesting a desire by visitors for more recreational opportunities. Unlike other nearby water resources, Whitewater River offers outstanding and easily accessible opportunities for waterplay year-round.

The Whitewater WSR corridor also provides stunning wildlife viewing opportunities, just a short drive away from Coachella Valley. The nearby Wildlands Conservancy frequently offers opportunities to view the unique desert bighorn sheep (*Ovis canadensis nelsoni*) through readily available free spotting scopes. There are also exceptional opportunities for birders, including views of migrating summer tanagers (*Piranga rubra*) and vermilion flycatchers (*Pyrocephalus rubinus*), as well as the chance to see the endangered southwestern willow flycatcher and least Bell’s vireo (*Vireo belli pusillus*). Visitors to the Wildlands Conservancy facilities can learn more about common local birds and engage in a host of other programs. The Whitewater Preserve also operates a Visitor Center with educational outreach programs.

In addition to wildlife viewing and waterplay, there are also a wide range of hiking opportunities at the BLM segment of Whitewater River. Hikers can access the desert, as well as mountain habitat, including the 11,503-foot-tall eastern slope of San Gorgonio peak. Locals can easily access trails at the recreational section of the river, one of the only hiking spots in the area that permits dogs. The southern portion of the wild section of the river connects with the Pacific Crest Trail, which provides world-class hiking and incredible views of the Whitewater River valley.

Whitewater River is an excellent location for deer hunting as well. The wilderness just beyond the Pacific Crest Trail offers a primitive desert hunting experience in proximity to an urban area. Upstream, there are more solitary, forested hunting areas. The Whitewater River corridor also offers a nationally significant opportunity to hunt desert bighorn sheep to hunters who apply for and win a desert bighorn sheep tag.

3. Geology

FS Segment

Finding
The FS segment of the river possesses no outstandingly remarkable geology values.

Discussion of Values – Rationale for Conclusion
The FS segment of the river consists of mostly Mesozoic granite and Precambrian igneous and metamorphic rock, as well as some marine sedimentary rock and minor amounts of Pliocene non-marine sediments. The mountains are very steep, with faults and steep escarpments, providing locally significant geology. However, there are no rock formations or other geological features that are regionally significant enough to warrant designation as an ORV.

BLM Segment

Finding
The BLM segment of the river possesses no outstandingly remarkable geologic values.

Discussion of Values – Rationale for Conclusion
There are no regionally significant rock formations within the BLM segment of Whitewater River that would warrant an ORV. Fossiliferous sedimentary rocks from the Miocene aged Coachella formation are present along much of the eastern side of the river. These units disappear under the alluvial sediments of the river, with hard crystalline rocks of Precambrian gneiss exposed along much of the western side. These units are juxtaposed against older gneiss south of the San Andreas fault, which lies outside of the river corridor, near the southern end of the river, north of Interstate 10. The Coachella Fanglomerate is composed of crudely stratified, poorly sorted white and reddish tan cobble to boulder conglomerate and lenticular coarse-grained sandstone, along with some interbedded finer units of siltstone. These units are interpreted as braided fluvial and alluvial deposits that formed along the upper end of the Salton Trough. These geologic descriptions and expressions are found throughout the region, and they are therefore not unique to the river corridor.

4. Fish

FS Segment

Finding
The FS segment of the river does not possess any outstandingly remarkable fish values.

Discussion of Values – Rationale for Conclusion
Although the Whitewater River is known to contain naturally reproducing rainbow trout, as well as other fish in good condition, the presence of rainbow trout is unknown at some portions of the river. Further, surveys have been conducted at this section of the river by a trout biologist, and no fish were collected in the areas surveyed. No other surveys have been carried out at this segment of the river.

BLM Segment

Finding
The BLM segment of the river does not possess any outstandingly remarkable fish values.

Discussion of Values – Rationale for Conclusion
Whitewater River is not a native rainbow trout stream, although trout were historically present due to hatchery stocking efforts. The current location of The Wildlands Conservancy's Whitewater Preserve was previously the location of a fish hatchery, where fish were reared in a facility and released into the drainage. The remaining reared trout lived in man-made ponds near the main visitor center, the last of which died of old age in 2017. The Wildlands Conservancy has no future plans to breed non-native trout or other non-native fish at any of their managed lands, including Whitewater Preserve.

Additionally, surveys have been conducted at this section of the river by a trout biologist, and no fish were collected in the areas surveyed. No other surveys have been carried out at this segment of the river.

5. Wildlife

FS Segment

Finding
The FS segment of the river possesses outstandingly remarkable wildlife values.

Discussion of Values – Rationale for Conclusion
The river corridor provides habitat to a number of rare, threatened, and endangered species. These include FS Sensitive California spotted owl (*Strix occidentalis*), San Bernardino flying squirrel (*Glaucomys sabrinus californicus*), and Nelson's bighorn sheep, as well as the State threatened rubber boa (*Charina bottae*) and the federally endangered mountain yellow-legged frog (*Rana muscosa*), southwestern willow flycatcher, and least Bell's vireo. The river corridor is, also, home to over 240 species of resident and migratory birds and a number of mammalian predators, including the gray fox, bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), and coyote (*Canis latrans*). Portions of the river corridor and nearby area are also part of the Desert Tortoise (*Gopherus agassizii*) Conservation Area, containing designated critical habitat for the species, which is threatened at both the State and Federal level and a candidate State endangered species.

BLM Segment

Finding
The BLM segment of the river possesses outstandingly remarkable wildlife values.

Discussion of Values – Rationale for Conclusion
As discussed in the previous section, the Whitewater WSR corridor supports a number of sensitive and State and federally listed species, as well as a wealth of birds and mammals. Several additional BLM Sensitive and California Species of Concern occur along the BLM managed portions of the river, including the summer tanager, yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens*), gray vireo (*Vireo vicinior*), and crissal thrasher (*Toxostoma crissale*).

6. Heritage (Historic, Prehistoric, and Cultural Resources)

FS Segment

Finding
The FS segment of the river does not possess outstandingly remarkable historic, prehistoric, or cultural heritage values.

Discussion of Values – Rationale for Conclusion
There is limited information available regarding Native American use, potential occupation, or other evidence of historical significance at this segment of the river. Further, this portion of the river corridor is very steep, which may have limited its use or occupation by historic peoples.

BLM Segment

Finding
The BLM segment of the river possesses outstandingly remarkable cultural heritage values.

Discussion of Values – Rationale for Conclusion
There is evidence that the Whitewater Canyon was the settlement place of the Wanakik people before they moved to the Malki reservation site. The Wanakik were joined by a group of Pass Cahuilla who had been living on Mission Creek, to the east of Whitewater, prior to the area being flooded. Historians and archaeologists speculate that the village site flooded during the winter of 1861-1862, resulting in the movement of its residents to a location near or at Whitewater Ranch before moving to Malki. At least three potential village sites have been identified by archaeologists in Whitewater Canyon. There is also evidence of a native trail system that ran through a section of the Whitewater River corridor. Although there is speculation about the trail name and route, the nearly 1,000-foot-long trail is scattered with ceramic vessel shards.

In addition to the Native American history at the site, the nearby Bonnie Bell property appears to have originally been used by tuberculosis patients around 1925-1926. It is unclear whether this was a dedicated medical facility. However, in the early 1920s, the interior of California was flooded with people seeking relief from respiratory complaints like tuberculosis. Today, Bonnie Bell is a private property with a small cluster of houses.

7. Botany

FS Segment

Finding
The FS segment of the river does not possess any outstandingly remarkable botanical values.

Discussion of Values – Rationale for Conclusion
The montane, wet meadows at the headwaters of this river segment are a rare habitat type for the region. This type of habitat is known to support four threatened, endangered, and sensitive California plant species: San Bernardino bluegrass, California taraxacum, lemon lily, and scalloped moonwort (*Botrychium crenulatum*). However, while suitable habitat exists, populations of these species are not documented in this section of the river corridor. One endangered plant species, the triple-ribbed milk-vetch (*Astragalus tricarinatus*), is known to occur at the lower reaches of Whitewater Canyon, although populations are not known in the Forest. Areas with documented occurrences of this plant are quite a distance from the river, and the elevation gradient near the river is too high to support the species.

The FS Sensitive species, little San Bernardino Mountains gilia (*Linanthus maculatus*), is also known to occur in the outwash fans of the Whitewater River. However, there is little potential for this plant to occur within the FS portion of the river corridor, as it too cannot tolerate the elevation gradients at the river. There is a locally significant, documented population of lemon lily, an FS Sensitive plant species, at the South Fork of the river. However, other than lemon lily, there are no documented populations of unique plant species, or plant species of conservation concern.

BLM Segment

Finding
The BLM segment of the river does not possess any outstandingly remarkable botanical values.

Discussion of Values – Rationale for Conclusion
There is an absence of documented populations of extremely unique species of flora, as well as a lack of plant surveys, along this segment of the river.

Free Flowing Condition

FS and BLM Segments

The North, Middle, and South Forks of the FS segment of the Whitewater River are all free flowing. The North Fork is free flowing for 5.8 miles, from its headwaters to its intersection with the Middle Fork. The Middle Fork is free flowing for 5.3 miles, from its headwaters to the Forest boundary. The South Fork is free flowing from its headwaters to the South Fork Diversion Dam, where water is diverted by flume line through the Raywood Flat and into Banning Canyon, where the river is once again free flowing until the Forest boundary. Finally, the East Fork of the South Fork is also free flowing from its headwaters to the East Fork Diversion Dam. The water is diverted at this point by flume line to the South Fork just below the South Fork Diversion Dam, after which the river is once again free flowing until its confluence with South Fork. All of the free-flowing segments described here are intermittent for some of their length during the mid- to late-summer and fall.

The BLM segment of the river is also free flowing along its entire length. The Whitewater Canyon portion of the river is free flowing from the beginning of the BLM-managed lands in the San Gorgonio

Wilderness through the wilderness area boundary with the lands managed by The Wildlands Conservancy, and 0.1 miles north of the community of Bonnie Bell. Except during years of low precipitation, this segment of the river has an annual flow to just north of the community of Bonnie Bell. In 2019, the Whitewater Canyon area received over eight inches of rainfall in a twelve-hour period, causing a flood later named the Valentine's Day Flood. The event resulted in debris flows from adjoining canyons that covered Whitewater Canyon Road, washed out the primary crossing at the main fork, and caused numerous alluvial fans, some of which covered roads.

Whitewater River flows year-round, mainly in the upper reaches, with flows tending to drop off during the fall and summer months. During months of high precipitation, water flow in the canyon can become very fast and treacherous. Due to the steep channel gradient and broad alluvial valley floor, with high amounts of course depositional bed materials, high precipitation events and rapid snow melt tend to shift bed materials both horizontally within the valley, creating new channel patterns, and vertically, exposing the underlying bedrock. During floods, which are rare, surface water can reach the endorheic basin of the Salton Sea, the larger drainage basin to which Whitewater belongs.

Although there are no longer any USGS gage stations along the river, historical flow data is publicly available from the USGS. Two gages previously existed within the Whitewater River Valley, immediately south of Bonnie Bell. Gage number 10256050 was located off the main channel, whereas gage number 10256000 was located on the main channel. These gages recorded flow data from 1948 through 1979. The average annual flow rate during this recorded period was 17 cfs, although annual flow rate ranged from as low as 3 cfs in 1972 to a high of 119 cfs in 1969. A maximum single flow event of 24,000 cfs was recorded in 1965. The USGS National Water Information System for this gage also lists a single flow event of 42,000 cfs on March 2, 1938, but there is no reference on how this rate was recorded.

Gage 10256050 also recorded monthly suspended sediment discharges from October 1971 through August 1972. The data from this recorded period provide support that in high flow events, large amounts of sediment are transported. In December 1971, daily flow rates were well below 10 cfs for the majority of the month until a flow event of 126 cfs, the mean flow rate for the day, not the peak rate for that day. This event resulted in a mean sediment discharge of 21,400 tons/day. There is no current data available on flow rate, water elevation/river stage, or sediment discharges at Whitewater River, as the USGS gage stations described here no longer exist.

Water Quality

FS and BLM Segments

Whitewater River is a small perennial stream with its headwaters in the San Bernardino Mountains, terminating at the Salton Sea in the Colorado Desert. The river's name, originally "Agua Blanco" in Spanish, comes from the milky white appearance of the water caused by silicate and lime sediment. The area drained by Whitewater is part of the larger Salton Sea drainage basin. Several other rivers and washes eventually join Whitewater, but the water mainly penetrates through the desert floor to provide groundwater to the Coachella Valley aquifer. Whitewater River is also fed water imported from the Colorado River aqueduct, which is managed by the Metropolitan Water District of Southern California.

Whitewater Preserve, a unit of the Wildlands Conservancy, takes monthly and annual water samples from the domestic well and the river itself. These data have demonstrated exceptional water quality in terms of dissolved oxygen, and absent or extremely low concentrations of nitrates and arsenic. Further, in 2020, a non-profit group that assists with data collection, called Adventure Scientists, began water quality monitoring on federally managed WSR segments, including Whitewater River. Volunteers will eventually collect chemical and physical data, including pH, temperature, dissolved oxygen, conductivity, and habitat characteristics. They will also collect water samples to be analyzed by professional laboratories for anions and cations, nutrients, and trace metals.

The USGS also conducted water quality testing at stream gage number 10256000, just south of Bonnie Bell, from 2006 to 2013. Data was collected on pH, dissolved solids, calcium, magnesium, potassium, sodium, bromide, chloride, fluoride, iron, arsenic, and others. Compared with the Environmental Protection Agency (EPA) National Recommended Water Quality Criteria for freshwater aquatic life, these limited test results show that at this location, Whitewater River satisfied the EPA criteria for alkalinity, arsenic, chloride, iron, dissolved oxygen, and pH.

Based on preliminary data, Whitewater River has exceptional water quality. This may be due in part to the fact that the river flows through federally managed or conservation partner lands, as well as the San Gorgonio Wilderness, from its headwaters to its terminus. There are, however, some threats to water quality. The Pacific Crest Trail intersects the lower reaches of Whitewater and one of its tributaries. Since these areas are rather remote, hikers often camp nearby, resulting in some human waste deposition near the drainage. There is also a power-generating wind farm near the river terminus. This facility, called Mesa Wind Farm, maintains and operates a number of turbines that require a network of access roads, some of which lie along the ridges overlooking Whitewater. Thus, during rain events, erosion sometimes occurs from the dirt road surfaces. The Valentine’s Day storm of 2019 produced exceptionally high rainfall over a short period of time that resulted in significant flooding of the river. This flooding event, likely exacerbated by climate change, caused mass wasting and increased turbidity. Given the increased frequency of extreme rain events as a result of climate change, it is possible that flooding of this magnitude might occur with greater frequency in the near future.

The quality of the Whitewater River and its tributaries have also been at risk for the past twenty years or more from waste related to feral cattle. A portion of the river, once part of the Whitewater Canyon Grazing Allotment, was legally grazed until 1998. It was then determined that the land needed to rest for two years, and grazing was soon discontinued altogether. Currently, although legal grazing has ended, the descendants of cattle from nearby landowners that wandered onto BLM lands are present in the river corridor. There have been several cattle removal efforts, but feral cattle are still a problem for the river.

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